

What is claimed is:

1. A semiconductor laser device comprising:
a semiconductor substrate on which a semiconductor thin film including an active layer is laminated;
5 a pair of electrodes respectively provided on opposite faces of the substrate;
a light emitting surface defined on a side face of the substrate to which the active layer and an edge of at least one of the electrodes are exposed; and
10 a protective film covering the light emitting surface, the protective film having a smaller thickness on the edge of the electrode than on the active layer.
2. A semiconductor laser device as set forth in claim 1, wherein the protective film has a thickness which is progressively
15 reduced toward the edge of the electrode from the active layer.
3. A semiconductor laser device as set forth in claim 1, wherein the protective film has a laminate structure comprising a layer composed of one of Al_2O_3 , SiO_2 and TiO_2 and an Si layer, and the Si layer contacts the light emitting surface and has a smaller
20 thickness on the edge of the electrode than on the active layer, the electrodes being composed of gold.
4. A semiconductor laser device as set forth in claim 3, wherein the Si layer has a thickness which is progressively reduced toward the edge of the electrode from the active layer.
- 25 5. A method for producing a semiconductor laser device as

recited in claim 1, the method comprising the steps of:

forming a pair of electrodes on opposite faces of a semiconductor substrate on which a semiconductor thin film including an active layer is laminated;

5 defining a light emitting surface on a side face of the semiconductor substrate to which the active layer and an edge of at least one of the electrodes are exposed; and

forming a protective film on the light emitting surface by vapor deposition;

10 wherein the protective film forming step comprises the step of masking the edge of the electrode with a jig spaced a predetermined distance from the edge of the electrode so as to indirectly shield the edge of the electrode from a vapor deposition source during the vapor deposition, whereby the protective film is
15 formed as having a smaller thickness on the edge of the electrode than on the active layer.

6. A method for producing a semiconductor laser device as recited in claim 1, the method comprising the steps of:

providing a laser bar having light emitting surfaces
20 respectively defined on opposite side faces thereof to which an active layer thereof and edges of electrodes thereof are exposed;

forming protective films on the respective light emitting surfaces of the laser bar by vapor deposition; and

dicing the laser bar formed with the protective films;

25 wherein the protective film forming step comprises the step

- of masking the edges of the electrodes with a jig spaced a predetermined distance from the edges of the electrodes so as to indirectly shield the edges of the electrodes exposed to the light emitting surfaces of the laser bar from a vapor deposition source during the vapor deposition, whereby the protective films are formed as having a smaller thickness on the edges of the electrodes than on the active layer.
7. A method as set forth in claim 6, wherein the predetermined distance is 25 to 40 μ m.
- 10 8. A method as set forth in claim 6, wherein the protective films each have a laminate structure comprising a layer composed of one of Al₂O₃, SiO₂ and TiO₂ and an Si layer, the Si layer being formed by vapor deposition while the edges of the electrodes are masked with the jig.
- 15 9. A jig for use in a method as recited in claim 6, the jig comprising:
- a base on which a laser bar is to be placed with its electrode opposed to the base; and
- a shield member projecting upright from an edge of the base for masking an edge of the electrode exposed to a light emitting surface of the laser bar;
- 20 wherein, when the laser bar is placed on the base, the shield member is spaced a predetermined distance from the edge of the electrode of the laser bar.
- 25 10. A jig as set forth in claim 9, wherein the predetermined

distance is 25 to 40 μ m.

11. A jig as set forth in claim 9, wherein the shield member has a height such that an upper edge thereof is located at a level lower than an active layer of the laser bar exposed to the light emitting surface when the laser bar is placed on the base.

12. A jig as set forth in claim 9, wherein the base is rectangular, and the shield member includes two shield members which respectively project upright from opposite edges of the base in opposed relation.

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